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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/814,319	03/31/2004	Xinhua Gu	IMRAA.025A	5170
20995 7590 06/01/2007 KNOBBE MARTENS OLSON & BEAR LLP 2040 MAIN STREET FOURTEENTH FLOOR IRVINE, CA 92614			EXAMINER VAN ROY, TOD THOMAS	
			ART UNIT 2828	PAPER NUMBER
			NOTIFICATION DATE 06/01/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/814,319	Applicant(s) GU ET AL.	
	Examiner Tod T. Van Roy	Art Unit 2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-74 is/are pending in the application.
- 4a) Of the above claim(s) 6, 17, 18, 24, 26, 31-41, 44-46 and 51-74 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 42, 43 and 47-50 is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-16, 19-23, 25, 27-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>4/11/07</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

The Examiner acknowledges the amending of claims 1, 9, and 42.

Response to Arguments

Applicant's arguments, see Remarks, filed 03/13/2007, with respect to the rejection(s) of claim(s) 12, 19 and 27 under 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of newly found prior art.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4, 7-9, 11-13, 19-21, 23, and 27-28 are rejected under 35 U.S.C. 102(e) as being anticipated by Lin et al. (US 6570892).

With respect to claim 1, Lin discloses a pulsed fiber laser outputting pulses having a duration and width comprising: a modelocked fiber oscillator outputting optical pulses (fig.4E #120), an amplifier (fig.4E #130) optically connected to said modelocked fiber oscillator to receive said optical pulses, said amplifier comprising a gain medium that imparts gain to said optical pulses (inherent), and a variable attenuator (fig.4A

#122) disposed between said modelocked fiber oscillator and said amplifier, said variable attenuator having an adjustable transmission such that the amplitude of said optical pulses that are coupled from said modelocked fiber oscillator to said amplifier can be reduced (col.10 lines 5-15), and a compressor to compress the pulse to reduce the pulse width (col.11 lines 53-65), wherein said amplifier is configured such that attenuating said amplitude of the optical pulses coupled from said modelocked fiber oscillator to said amplifier reduces the pulse width (as the entirety of the claimed instant invention is taught by Lin, it is inherent that the amplifier would operate accordingly).

With respect to claims 2-4, Lin further discloses the use of a polarizing element (fig.4A #124).

With respect to claims 7-8, Lin discloses an element that shortens the duration of said optical pulses (soliton module, col.11 lines 53-65, inherently dispersive, formed of the fiber resonator).

With respect to claim 9, Lin discloses a method of producing compressed laser pulses comprising, substantially modelocking (fig.4E #120) longitudinal modes of a laser cavity to repetitively produce a laser pulse, amplifying said laser pulse (fig.4E #130), chirping said laser pulse thereby changing the optical frequency of said optical pulse over time (inherent due to dispersive property of optical fibers), compressing said laser pulse by propagating different optical frequency components of said laser pulse differently to produce compressed laser pulses having a shortened temporal duration (soliton module, col.11 lines 53-65, inherently dispersive, formed of the fiber resonator), and selectively attenuating the amplitude of said laser pulse (fig.4A #122) prior to said

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amplifying of said laser pulse to further shorten said duration of said compressed laser pulses.

With respect to claim 11, Lin discloses maintaining the polarization of the pulse after amplification (col.4 lines 58-66).

With respect to claim 12, Lin discloses a method of manufacturing a fiber laser comprising, modelocking a fiber based oscillator that outputs optical pulses (fig.4E #120), optically coupling an amplifier (fig.4E #130) to said fiber based oscillator through a variable attenuator (fig.4A #124) so as to feed said optical pulses from said fiber based oscillator through said variable attenuator and to said amplifier, and adjusting the variable attenuator based on a measurement of said optical pulses to reduce the intensity of the optical pulses delivered to said amplifier (col.10 lines 5-8) and to shorten the pulse (see claim 1).

With respect to claim 13, Lin discloses a pulse compressor to shorten the optical pulses (col.11 lines 53-65).

With respect to claim 19, Lin discloses that described in the rejection to claim 1 above, and including the use of a spectral filter (fig.4E/F #110) disposed to receive said optical output of said modelocked fiber oscillator prior to reaching said amplifier (on the return trip from mirror #113, not claimed as being directly received from the modelocked oscillator, so is not limited to the first pass), said spectral filter having a spectral transmission with a band edge that overlaps said spectral power distribution of said optical output of said modelocked fiber oscillator to attenuate a portion of said spectral power distribution and thereby reduce the spectral bandwidth (col.10 lines 44-51), the

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pulse width of said optical pulses coupled from said modelocked fiber oscillator to said fiber amplifier thereby being reduced.

With respect to claims 20-21, Lin discloses the use of a bandpass filter (col.10 lines 44-51).

With respect to claim 23, Lin discloses the use of a grating (fig.4E).

With respect to claims 27-28, Lin discloses the method of producing the optical pulses as outlined in the rejection to claim 19 above.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 5, 10, 14-16, 22, 25, and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin.

With respect to claim 5, Lin teaches the polarization device outlined in the rejection of claims 2-4 above, but does not teach the device to be a waveplate. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the polarization element of Lin with a waveplate having the same function as this optical element is well known and widely used in the art.

With respect to claims 10 and 14, Lin teaches the system outlined in the rejection to claims 9 and 12, but does not teach the specified attenuation, power, or duration values. It would have been obvious to adjust the system of Lin to obtain the stated values as a matter of routine optimization by one of ordinary skill in the art (see MPEP 2144.05 II A - "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235(CCPA 1955)).

With respect to claims 15-16, Lin teaches the variable attenuator control outlined in the rejection to claim 12 above, but does not teach the control to be specifically based on either a power or pulse duration measurement. It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the attenuator control of Lin with pulse duration or power measurement feedback in order to effect control over the system output as a whole.

With respect to claims 22, 25, and 29-30, Lin teaches the filtering devices outlined in the rejections to claims 19 and 27 above, but does not teach a specific spectral bandwidth to be utilized. It would have been obvious to adjust the system of Lin to obtain the stated values as a matter of routine optimization by one of ordinary skill in

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the art (see MPEP 2144.05 II A - "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235(CCPA 1955)).

Allowable Subject Matter

Claims 42-43, and 47-50 are allowed.

The following is an examiner's statement of reasons for allowance:

With respect to claim 42, a modelocked fiber system as outlined in claim 42 having the stated tap locations between the oscillator and amplifier as well as between the amplifier and compressor, and including the feedback control of the second tap based on the measurement of the first tap was not found to be taught in the prior art.

Claims 43, and 47-50 are allowable as they depend from claim 42.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

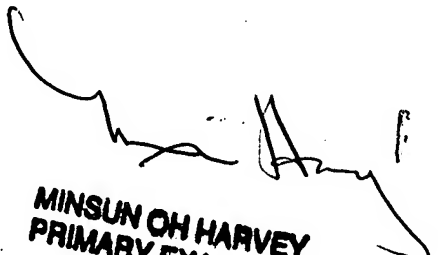
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tod T. Van Roy whose telephone number is (571)272-8447. The examiner can normally be reached on M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on (571)272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TVR



**MINSUN OH HARVEY
PRIMARY EXAMINER**